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ABSTRACT

This study investigated the effectiveness of an approach to teaching an advanced research class by comparing students' test scores on a test of research fundamentals before and after the course. The classes that were the focus of the study were offered in 2001 and 2002 by the same instructor. Both sections incorporated article critiques (based on an instrument from Wilson and Onwuegbuzie), a critique-based examination, and an oral presentation of a grant application completed by each student. The purpose of the critiques and grant application were to provide the students with opportunities to apply in some depth the research knowledge they had acquired from their basic research courses. There were 26 participants for whom there was complete information, 14 females and 12 males. Multiple-choice pretests and posttests on fundamental research topics were given. A 30-item posttest yielded a Cronbach's alpha of 0.76. A paired t-test was run comparing the pretest and posttest scores. The assumption of normality was verified by the Omnibus Normality of Residuals Test, but random selection was not possible since students were not randomly assigned to classes. No control group was possible since all students were taught by the same instructor.The t-test indicated that the null hypothesis of no statistically significant difference between the mean pretest and posttest scores could be rejected at the 0.05 level. The effect size, d=0.61, was medium (Cohen). It is concluded that offering the course using the approach described could be reasonably effective in improving the performance of the students to the extent measured by the multiple-choice tests. An attachment describes the course. (Contains 2 figures and 22 references.) (Author/SLD)

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Teaching Research with Critiques and Grant Proposals

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Teaching Research with Critiques and Grant Proposals

The study investigated the effectiveness of an approach to teaching an advanced research class by comparing students' test scores on a test of research fundamentals before and after the course. The classes that are the focus of this study were offered in the Fall 2001 and Spring 2002 terms under the same instructor. Both sections incorporated article critiques (based on an instrument from Wilson and Onwuegbuzie), a critique-based exam, and an oral presentation of a grant application completed by each student. The purpose of the critiques and grant application were to provide the students with opportunities to apply in some depth the research knowledge they had acquired from their basic research courses. There were 26 participants for whom there was complete information, comprising 14 females and 12 males. Multiple-choice pretests and posttests on fundamental research topics were given. A thirty-item posttest yielded a Cronbach's alpha of 0.76. A paired t-test was run comparing the pretest and posttest scores. The assumption of normality was verified by the Omnibus Normality of Residuals test, but random selection was not possible since students cannot be randomly assigned to classes. No control group was possible since all sections of the course were taught by the same instructor. The t-test indicated that the null hypothesis of no statistically significant difference between the mean pretest and posttest scores could be rejected at the 0.05 level [$t(1,24)=2.42$, $p=0.02$]. The effect size, $d=0.61$, was medium (Cohen). It is concluded, then, that offering the course using the described approach could be reasonably effective in improving the performance of the students, to the extent measured by the multiple-choice tests.

Teaching Research with Critiques and Grant Proposals

Judging from the literature, strategies for teaching research are proliferating (Campbell, 2000; Jackson and Wolski, 2001; Pors, 2000; Porter, 2001). Among the approaches are a wide variety of methods, used for a wide variety of courses. For example, in the area of nursing, Tanner (1999) referenced a slide of Dr. Cornelia Beck, who spoke to a meeting of the American Association of Colleges of Nursing: "In God We Trust. All Others Bring Data." Tanner was promoting evidence-based practice in the nursing profession as a tie-in to teaching research.

Hitchcock and Murphy (1999) included nursing students in a faculty research study to teach undergraduate research content directly. Course evaluations and student comments indicated that the project helped develop positive attitudes and increased the students' comfort level. Students participated as research subjects, data collectors, and consumers of research.

Gieselman, Stark, & Farruggia (2000) recommended situated learning theory to expose nurses with little research experience to this area. Following this approach, both the learner and the teacher are actively involved in instruction with each taking some responsibility for tasks. The learner determines what is meaningful, how it is to be understood, and how it is to be incorporated into what is already known. The instructor plays a supportive, rather than direct, role in learning.

Fazzone (2001) outlined an experiential method that incorporates naturalistic and positivistic approaches to graduate nursing research. The method comprises five elements: a non-threatening environment, guided imagery, teaching research along a "Continuum of Inquiry", situation-based exams, and a research proposal.

Brosnan, Eriksen, and Lin (2002) explained that an expansion in electronic recordkeeping in the health

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care industry has led to the availability of large databases that can be analyzed to improve clinical practice. Their Research Applications course allows students to develop skills and gain confidence in analyzing these public-use national data sets.

Upchurch, Brosnan, & Grimes (2002) taught synthesis of the research literature to advanced practice nurses to help them find meaning in the research. Most of the student nurses reported that the strategies helped them integrate their research and clinical practice, showed them how to find and evaluate research, and promoted their independence and critical thinking. By the end of the process, they were able to create and maintain a bibliographic database, prepare a computer graphics presentation, and document their research findings in a standard format. Although a few students reported some frustration and ambiguity, in general, they rated the courses and faculty as above average to excellent, and recommended the courses to their peers.

Kern (2001) used an investigative laboratory instruction project to teach research to undergraduate nutrition students. While it might be more costly than non-investigative laboratory instruction, the method was effective for teaching scientific concepts to college students. Benefits included greater familiarity with experimental design and implementation, greater curiosity about the topic, enhanced student commitment to the course, better student collaboration and interaction, and more well-developed critical thinking skills.

Silverman and Keating (2002) examined research methods classes in departments of kinesiology and physical education across the country and found that professors tended to spend more than half of their class time lecturing; they based grades on exams, a research proposal, and other assignments. Even though the research methods instructors appeared to emphasize many topics, were experienced, and were productive, they did not tend to welcome new methodologies readily and relied on traditional teaching techniques.

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Although these studies were based in health-related fields, there are other fields in which research methods are a topic of interest. For example, in the criminal justice area, Bordt (1999) focused on simulation to engage students in hands-on activities, to put the methods in a context, and to enhance their critical evaluation skills. Although the students may enter with limited exposure to research methods, by integrating the simulation into a nonmethods class, the instructor was able to bridge the gap in the students' knowledge.

Kessler and Swatt (2001) applied mastery learning to the teaching of criminal justice research methods. Students rewrote exercises until they obtained perfect scores. The authors found that the better the students performed on the exercises, the more they improved from the pretest to the posttest (the final). The more the students rewrote their assignments, the better they did on the final, as well. As little as one or two rewrites maximized their improvement. The approach is more time consuming than a more traditional one, but was beneficial for struggling students. Because of the increased workload for the teacher, the class size was limited.

Sever (2001) noted the difficulty of teaching research methods, in particular, within the graduate criminal justice curriculum. He studied 11 current criminal justice research methods textbooks and surveyed 36 graduate criminal justice instructors and their classes. Both the texts and the teachers emphasized quantitative methods but the texts focused more on qualitative methods than the instructors. Both tended to neglect critical areas including grantwriting, article writing and critiquing, and standards for collaborative research efforts. Sever recommended that research methods should be included in the lectures and textbooks of other criminal justice classes to help bridge the gap between theory and the field. Instructors and textbook authors should place greater emphasis on theories and how researchers can test and evaluate policies.

Lanier (2002) outlined a model that involved criminal justice students with data collection, analysis, and computer programs. He illustrated the process with a case study based on his Spring 1999 graduate course in quantitative methods and computer utilization. He noted that the ultimate measure of success was how much the students actually learned. He indicated that it was perhaps best demonstrated by the students who continued working with the data. Then they were able to use the strategies and software to contribute to the criminological knowledge base. Success was further illustrated by the students' excitement as they collected their own data and studied something that could make a difference. By these measures, he found the course to be a resounding success.

Another area in which research methods plays an important role is that of communications. For example, Keyton (2001) suggested service-learning as a pedagogical approach to teaching research methods. The model incorporates experiential learning, applied research, and a joint service-learning commitment between the students and instructor. Using this model, students help a client agency or their clients, or help with how the organization is perceived by clients, volunteers, or community members. Most students learned two important lessons, that their capacity to perform research activities far exceeded their initial expectations, and that the utility or necessity of learning research methods was greater than they might have initially believed. Their course evaluations have indicated that the approach provided a context and motivation for learning as well as demonstrating the practical application of research principles.

Rodrick and Dickmeyer (2002) incorporated a capstone research experience into the communications curriculum to help students find relevance and ownership during the research process. Students learned to appreciate that research is and always will be a part of their lives. Instead of viewing a research project as a hoop through which to jump, they planned for it and were excited about it. The downside of the approach is that

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the projects are faculty-intensive and it may be difficult to provide enough faculty to sufficiently mentor and supervise students.

Research methods are an important content area to include in probably any field, as these examples have served to demonstrate. It is also clear from these examples that there are many approaches which might be used to teach research methods, but the approaches which seem to be most effective are those which emphasize hands-on projects. Among those projects identified as being helpful are critiquing articles and writing grant proposals, components of the method used in the present study, which used a quasi-experimental single-subject pretest-posttest design. For this study, there were 26 participants for whom there was complete information, comprising 14 females and 12 males, with a diversity of students pursuing doctorates in educational administration or higher education. (The most recent course syllabus, for Fall 2002, is appended.)

The study investigated the effectiveness of an approach to teaching an advanced research class, by comparing students' test scores on research fundamentals before and after the course. The classes were offered in the Fall 2001 and Spring 2002 terms under the same instructor. Both sections incorporated article critiques (based on an instrument from Wilson and Onwuegbuzie, 1999), a critique-based exam, and an oral presentation of a grant application completed by the student. The purpose of the critiques and grant application were to provide the students with opportunities to apply in some depth the research knowledge they had acquired from their basic research courses.

In the fall term, students were expected to present three article critiques, basing their comments on the Wilson and Onwuegbuzie instrument and emphasizing specific components indicated by the instructor, including the introduction, literature review, method, and other fundamental features of a research study.

The class was invited to join the instructor in quizzing the presenters on their materials and adding commentary to the discussion. The midterm exam was another article to critique, but during class time rather than outside of class. The students did very well with these critiques therefore the required number was reduced to two for the subsequent spring and fall classes.

After the midterm, the students focused on grant proposals. The task included determining a project and then finding a funding agency that would have an interest in funding that kind of a project. This project required a considerable amount of research on the part of the students so that they were apprised of this responsibilility the first day of class. They were encouraged to investigate funding opportunities either through the materials distributed in class; through library resources; through principals, superintendents and other supervisory personnel; through the internet; and/or through other resources or personnel whom they might have located. One of the students who worked as a grant proposal writing specialist volunteered to talk for one class about proposal writing. The positive response to her presentation led to an invitation to the Director of the Office of Research and Sponsored Programs to present on the same topic in the spring. His presentation was so well received that he was asked to return for an encore in the Fall 2002 term.

The rationale for requiring the completion of grant applications rather than research proposals is that most grant applications require essentially the same information as that of research proposals although the formatting may be considerably different. Nevertheless, it is a very practical experience for the students and still provides an opportunity to implement their research knowledge. The students are generally enthusiastic about the project and many of them actually submit the completed application, even though it is not required. In the fall, one-fourth of the students were able to report that their proposals were

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funded before the end of the course; a third of the class had funded proposals in the spring.

While having a funded proposal is exciting, there is also the factual content side of the course to consider. To measure the students' progress, multiple-choice pretests and posttests on fundamental research topics were given. The items were developed from a popular research textbook to insure that there would be variance in the test scores as well as content validity. A thirty-item posttest yielded a Cronbach's alpha of 0.76 as an indicator of internal reliability. A paired t-test was run comparing the pretest and posttest scores. The assumption of normality was verified using the NCSS 2001 statistical program (Hintze, 2001) with the Omnibus Normality of Residuals test, but random selection was not possible since students are not randomly assigned to classes. However, there were no obvious demographic differences among the students to suggest that they might be substantially biased compared to other graduate statistics classes in state-supported colleges or universities in the mid-south region. No control group was possible since all sections of the course were taught by the same instructor. The t-test indicated that the null hypothesis of no statistically significant difference between the mean pretest and posttest scores could be rejected at the 0.05 level [$t(1,24)=2.42$, $p=0.02$]. The effect size, $d=0.61$, was medium (Cohen). Offering the course using the described approach could be reasonably effective in improving the performance of the students, to the extent measured by the multiple-choice tests.

Critiquing the articles and applying the knowledge gained provided an opportunity for growth in understanding as well as motivation to continue working in research venues. The hands-on, activity-based approach received numerous favorable comments from the students on their final evaluation forms, indicating student satisfaction with the activities.

One adjustment to the class for the Fall 2002 term was the addition of a requirement to find exemplars of various research proposal components. This activity was added because not all of the articles that were critiqued were necessarily exemplary in all respects. By searching for these components, the students began to evaluate the literature and more fully realized the purpose for critiquing papers and becoming critical consumers of published research.

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Two-Sample Test Report

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Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
PretestB	26	12.30769	1.913515	0.3752711	11.53481	13.08058
PosttestB	26	13.73077	2.661694	0.5220011	12.65569	14.80585

Note: T-alpha (PretestB) = 2.0595, T-alpha (PosttestB) = 2.0595

Confidence-Limits of Difference Section

Variance Assumption	DF	Mean Difference	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
Equal	50	-1.423077	2.31799	0.6428947	-2.714369	-0.1317849
Unequal	45.39	-1.423077	3.278133	0.6428947	-2.717623	-0.1285306

Note: T-alpha (Equal) = 2.0086, T-alpha (Unequal) = 2.0136

Equal-Variance T-Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-2.2135	0.031451	Reject Ho	0.583550	0.331642
Difference < 0	-2.2135	0.015725	Reject Ho	0.704912	0.431469
Difference > 0	-2.2135	0.984275	Accept Ho	0.000064	0.000004

Difference: (PretestB)-(PosttestB)

Aspin-Welch Unequal-Variance Test Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)	Power (Alpha=.01)
Difference <> 0	-2.2135	0.031927	Reject Ho	0.581856	0.328971
Difference < 0	-2.2135	0.015963	Reject Ho	0.703850	0.429088
Difference > 0	-2.2135	0.984037	Accept Ho	0.000065	0.000004

Difference: (PretestB)-(PosttestB)

Tests of Assumptions Section

Assumption	Value	Probability	Decision(5%)
Skewness Normality (PretestB)	1.0278	0.304021	Cannot reject normality
Kurtosis Normality (PretestB)	-1.2554	0.209337	Cannot reject normality
Omnibus Normality (PretestB)	2.6325	0.268142	Cannot reject normality
Skewness Normality (PosttestB)	-0.4879	0.625642	Cannot reject normality
Kurtosis Normality (PosttestB)	0.2186	0.826944	Cannot reject normality
Omnibus Normality (PosttestB)	0.2858	0.866835	Cannot reject normality
Variance-Ratio Equal-Variance Test	1.9349	0.105369	Cannot reject equal variances
Modified-Levene Equal-Variance Test	0.6539	0.422567	Cannot reject equal variances

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Two-Sample Test Report

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Median Statistics

Variable	Count	Median	95% LCL of Mean	95% UCL of Mean
PretestB	26	12	11	13
PosttestB	26	14	13	15

Mann-Whitney U or Wilcoxon Rank-Sum Test for Difference in Medians

Variable	Mann Whitney U	W Sum Ranks	Mean of W	Std Dev of W
PretestB	226.5	577.5	689	53.98774
PosttestB	449.5	800.5	689	53.98774

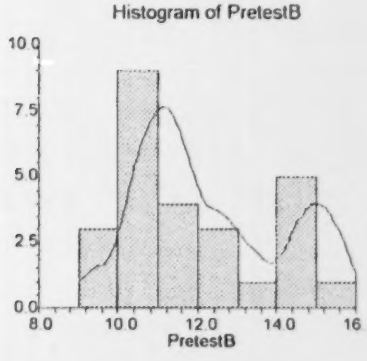
Number Sets of Ties = 9, Multiplicity Factor = 3342

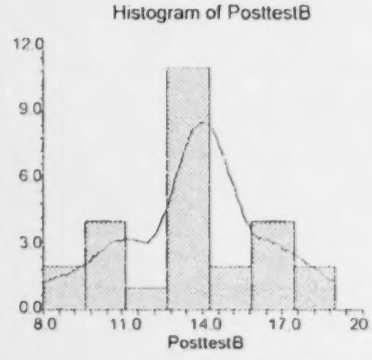
	Exact Probability		Approximation Without Correction			Approximation With Correction		
Alternative Hypothesis	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)
Diff<>0			-2.0653	0.038896	Reject Ho	-2.0560	0.039780	Reject Ho
Diff<0			-2.0653	0.019448	Reject Ho	-2.0560	0.019890	Reject Ho
Diff>0			-2.0653	0.980552	Accept Ho	-2.0745	0.980986	Accept Ho

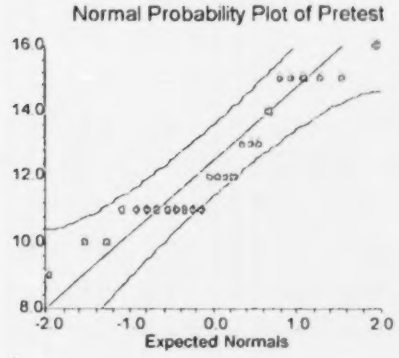
Kolmogorov-Smirnov Test For Different Distributions

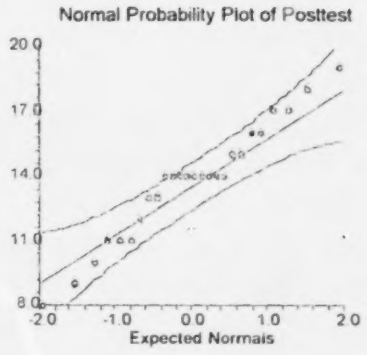
Alternative Hypothesis	Dmn Criterion Value	Reject Ho if Greater Than	Test Alpha Level	Decision (Test Alpha)	Prob Level
D(1)<>D(2)	0.384615	0.3772	.050	Reject Ho	0.0418
D(1)<D(2)	0.384615	0.3772	.025	Reject Ho	
D(1)>D(2)	0.038462	0.3772	.025	Accept Ho	

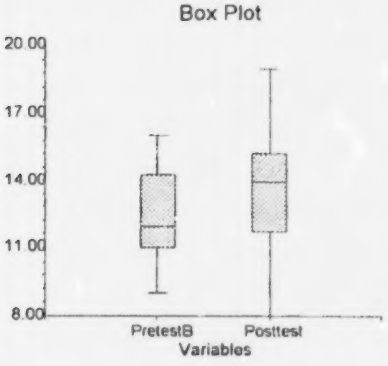
Plots Section











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UNIVERSITY OF ARKANSAS AT LITTLE ROCK
College of Education
Department of Educational Leadership
(revised 8/25/02)

I.	Course Prefix and Number	EDFN 8306
II.	Course Title	Advanced Research Methods and Techniques
III.	Credit	3 hours
IV.	Semester and Year	Fall, 2002
V.	Instructor	Rob Kennedy, Ph.D., Professor of Educational Foundations and Higher Education
VI.	Office Location	Dickinson 419B
VII.	Office Hours	By appointment
VIII.	Telephone	501-xxx-xxxx (UALR), 501-xxx-xxxx (home), rlkennedy@ualr.edu (e-mail)

IX. Course Description

Quantitative, qualitative research methods, techniques used in education; includes nature of scientific inquiry; planning, evaluation of educational research; sampling, measurement; commonly used research designs, methods, techniques.

The Conceptual Framework for programs in the College of Education is Leadership in Learning through Communication, Specialized Expertise, and Professional Development.

Communication: Students will use the expertise that they gain from Educational Foundations courses to communicate with a wide variety of audiences. They will know how to translate and evaluate current research trends and assessment practices in education. Based on their skills, these students will effectively advocate for best practices in educational improvement and thoughtful change in other work settings.

Specialized Expertise: Students will gain essential tools of their discipline in order to positively effect and measure change in students, schools, and organizations. They will gain knowledge of learning, diverse learning styles and instructional needs, lifespan growth and development, educational and psychological principles, assessment, and research.

Professional Development: Students will view themselves as professionals who are committeed to lifelong learning. They will strive to incorporate the latest in educational research, assessment, and technology into their work settings. They will be committed to data-based problem solving, to the value of inquiry in their disciplines, and to continually updating their knowledge toward teaching and learning.

X. Course Objectives

The objective is for you to become equipped to plan and implement research projects, including the dissertation. More specifically, you will be given exercises to help you:

Comprehend and evaluate written reports of research in education and related areas of inquiry. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Development)

Analyze information through reviewing research literature. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Developmen

Become familiar with the fundamentals of the research process by identifying research questions and planning research projects through writing grant proposals. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Specialized Expertise, Professional Development)

Become familiar with the fundamentals of being consumers of research through such procedures as locating research materials; reading them for knowledge, understanding, application, analysis, and synthesis; and evaluating them on the basis of their development, execution, and delivery. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 2.1.6, 2.2.5, 2.3.8, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Communication, Specialized Expertise, Professional Development)

Develop leadership and research skills through learning independently and making decisions based on this research. (Arkansas Licensure Principles 1.1.1, 1.2.2, 1.3.1, 1.3.2, 1.3.4, 1.3.5, 2.1.6, 2.2.5, 2.3.8, 3.1.3, 3.1.4, 5.1.1, 5.1.2, 5.2.1, 5.3.1, 5.3.2, Communication, Specialized Expertise, Professional Development)

XI. Texts, Readings, and Instructional Resources

Required Text

There is no one required text for the course. Rather, you are expected to utilize a variety of informational resources, with an emphasis on web-based sites.

Supplemental Reading

American Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, D.C.: Author.

XII. Assignments, Evaluation Procedures, and Grading Policy

Course Requirements

Students who demonstrate a commitment to the course through participation, reading, studying, and otherwise applying themselves to the course will benefit in direct proportion to that effort. If you view your coursework as an extracurricular activity that you pursue if you have some extra time, then expect to feel as though you learned little or nothing upon completing the class. If the course is to be a worthwhile experience for you, then you need to invest in it. In other words, "You get out of it what you put into it."

Evaluation Techniques/Concepts Used for Grading

Participation in Article Reviews (17.5%)
Participation in Finding Exemplars (17.5%)
Mid-term Examination (20%)
Final Examination (20%)
Grant Application (20%)
Bibliographic Annotation (5%)

Participation in Article Reviews (17.5%)

Each week, you will be assigned two articles to evaluate (the number might be adjusted later, depending on the amount of time available and required), available through the web. You will be expected to evaluate each, but will present your findings for only the ones assigned. You will also need to participate in the discussions of the other articles, but as part of the class rather than formally. You may work individually on your assigned review, or as part of a group, but each person is expected to contribute to the discussion of the assigned paper. Lack of participation or clearly inadequate preparation will yield no credit.

The format for the evaluations is provided in the file PaprEval.pdf. The terminology comes from your basic research and statistics classes which are prerequisites for this course. If you do not remember what a given term means, then it is your responsibility to demonstrate your research skills by looking up the term, either through the web, in a text, or via another source. Saying that you do not know what something means in lieu of providing an answer will be considered as evidence that you are clearly inadequately prepared, as noted in the previous paragraph. Since preparing for presenting/teaching is an effective form of hands-on learning, this activity should increase the amount of learning taking place.

Note that it is common to use the demos and examples that I provide as a template of sorts to do the article reviews. Responses that address additional areas, as listed in the PaprEval.pdf file, will be looked upon more favorably than critiques that merely reproduce what I did, but with the current article's information inserted.

It is important for you to further participate by signing up for the electronic class (See ARSignUp.pdf) so that you can benefit from the additional information available that way. Also, if I need to share updates with you about class closings, for inclement weather or other reason, then you will be able to get that information quickly, so please check your email regularly. Additionally, I will send out the passwords to my reviews of the articles on a weekly basis and will use the class discussion list to do this.

Please let me know if you need to miss a class. Skipping a class to avoid taking responsibility for the week's assignment not only detracts from your own learning, but also deprives your peers of the richer discussion that your preparation could have provided. Unexcused absences will result in no credit for that assignment.

Participation in Finding Exemplars (17.5%)

Some of the articles that will be critiqued in class will be good, even exemplary. Others will have deficiencies. So that good examples can be studied regularly, you will need to find and present four "good" examples of assigned components:

1 Title and Abstract
2 Introduction and Statement of the problem/Research hypothesis
3 Review of the literature
4 Research design/Evaluation
5 Threats to internal and external validity
6 Delimitations/Limitations
7 Subjects and Population
8 Instruments/Measures and Data collection procedures
9 Data analysis and Findings
10 Discussion

More information about each of these components can be found in the PaprEval.pdf file. More information about this assignment can be found in the Exemplars.pdf file.

Mid-term Examination (20%)

The mid-term exam will comprise the evaluation of another article, just as done in class. The evaluation format will be the same, so the practice you receive from class should prepare you for this test. The exam will require everything from merely having knowledge to the ability to apply information, synthesize, and

evaluate. The test is to help encourage you to learn the vocabulary and become familiar with various concepts of research.

Final Examination (20%)

The final exam will be similar to the mid-term exam, other than I will have higher expectations of your ability to evaluate an article, since you will have had considerably more experience by then critiquing and discussing papers.

Grant Application (20%)

The opportunity to apply what you have learned in a real-life situation is important to your learning. Therefore, you are expected to write a grant proposal to a funding agency. The funding agency for your proposal will be a source of your choosing. (See, for examples, the files FundAgen.pdf and Topics.pdf.) You will be expected to locate the funding source, request and obtain a grant application form from it, and complete it for submission to your instructor. A copy of the application form and its instructions, or the URL for the web page with this information, must accompany the copy submitted to the instructor to enable accurate assessment. You are encouraged to submit the application to the funding agency, although this is not required. However, you should not pursue this step unless you have the time, resources, and commitment to administer the grant since a substantial number of grants have been awarded to students in previous classes and you may become one of them! The funder will expect you to carry out the project and provide it with a final report. If you do follow through, please notify the instructor when you submit the document as well as provide documentation of the outcome. The report of your grant application should be posted to the class list also, so that all can share.

In evaluating this grant proposal, I will be looking for the required components (those required by the funding agency), as well as for the overall quality of the proposal in terms of its professionalism. Proper grammar, spelling, and punctuation, typing or word processing, and other aesthetic considerations are expected to be a part of your effort. The proposal should not only look good, but should read well. Proposals which do not meet these standards of professionalism will be considered unacceptable. You will need to submit your proposal on paper, but please do not use covers or other binders. Simply paper clip the pages together to facilitate their being taken apart for review. At least one other person, preferably more, should review your proposal before it is submitted for evaluation, to check for readability and completeness. If the paper is satisfactory, you will receive full credit. If it is not, then I will tell you what you need to do to complete or improve it, if there is time to do so. Please do not hand in proposals that are "rough drafts". They will simply be returned without being graded. You should feel that your application is complete before submitting it. Handing in the proposal the last night of class or during finals week means there is *not*

time for revision. Also, the later in the course that your proposal is submitted, the greater expectation I will have of your ability, since you will have had increasingly more practice evaluating research.

Bibliographic Annotation (5%)

The specifications for the Bibliographic Annotation are described in the file BibAnnot.pdf. Bibliographic annotations allow students to share with other researchers (future Advanced Research students) similar to the manner in which researchers share information through formal publications. The student should investigate sources found useful in developing understanding for the course, that is, research- or grant-type resources as opposed to resources related specifically to the topic being investigated.

Grading scale:

90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

XIII. Class Policies

Again, "You get out of it what you put into it." These words have greater meaning in this class in which the discussion contributes highly to the learning of each individual. It is important that each person be prepared to contribute to these discussions. Students who demonstrate dedication to the course through attendance, participation, reading, studying, and otherwise applying themselves to the course will benefit in direct proportion to that effort. Practicing with the applications is necessary for developing your skill with, and understanding of, research. Just as playing a piano requires much practice to hone ability and interpretation, so does the skill of doing and evaluating research. If you want to know the hows and whys of research, then you need to dig into the subject. Create your own problems and investigate them. Merely doing the assignments will enable you to get through the course, but true understanding will always require greater commitment. As an advanced student of education, you must decide if you want to add to your credentials the word "leader".

It is natural to wish to converse during class. However, if you must speak, please do so quietly to avoid distracting the other students who are paying for the instruction they are trying to hear. If conversing with your friends about unrelated topics is more important to you than listening to this instruction, then please step into the hallway to have the necessary discussion.

Additionally, note that because the lab in which we will be working contains a large amount of very expensive equipment, please do not bring in food or drink. This practice can be messy and distract other students. If you need to eat during class time, then you are welcome to visit the break lounge near the elevators.

If you must be available for communication, please show other class members the courtesy of setting your cellular phone, pager, beeper, or other device on vibrate so that it does not annoy or distract the other students in the class should it activate. If you do need to take the call, please step out into the hallway to converse.

XIV. Class Schedule

August 29	**Introduction, pretests, picture**
September 5	**Demonstration of article review and component exemplars. Sign up for article presentations, component exemplars.**
September 12	**Article reviews Component exemplars**
September 19	**Article reviews Component exemplars**
September 26	**Article reviews Component exemplars**
October 3	**Article reviews Component exemplars**
October 10	**Article reviews Component exemplars**
October 17	**Grant application writing presentation by Mxxx Mxxxx, Ph.D., Director of Research and Sponsored Programs, UALR Sign up for grant application presentations.**
October 24	**Article reviews Component exemplars**
October 31	**Mid-term exam, evaluation**
November 7	**MSERA. No class.**
November 14	**Grant application presentations**

November 21	**Grant application presentations**
November 28	**Thanksgiving Holiday. No class.**
December 5	***Grant application presentations***
December 17	**6:00 - 8:00 p.m. Final, evaluation, posttest.**

XV. Topical Outline

The topics below will be among those addressed through the article reviews:
The Nature of Educational Research
Statistical Techniques
Selecting a Sample
Collecting Research Data with Tests and Self-Report Measures
Collecting Research Data with Questionnaires and Interviews
Collecting Research Data through Observation and Content Analysis
Descriptive and Causal-Comparative Research Designs
Correlational Research Designs
Experimental Designs

XVI. Bibliography

Annual register of grant support: A directory of funding sources. (1997). 3rd ed. R.R. Bowker Data Base Publishing Group. New Providence, NJ.

This is the 1997 edition of this annual publication. The register provides an excellent summary of grants including information such as purpose, duration, funding amount, eligility, geographic restrictions etc. It provides it users (anything from government agencies to special interest organizations) a wide variety of of topics to choose from: humanities, international affairs, special populations, urban and regional affairs, education, sciences (social, physical and life)and technology and industry. Overall it is an user-friendly look at grants available to a wide variety of needs or purposes. (S. Stauffer)

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). Educational research: An introduction (6th ed.). White Plains, NY: Longman.

This text is excellent for the beginning grant writing student to discover the many facets of grant proposals. It leads through the grant writing process step by step. Beginning with an overview of educational research, the book leads the researcher through all the how tos: develop a proposal, handle ethical issues, review literature, collect research data, proceed with research and document it, and set up the experiments. It also discusses several types of research. Chock full

of examples, this book covers it all, including common mistakes and check questions. Although at times it is a bit difficult to read, there is no wonder that it is mandatory reading for beginning grant writers. (S. Justus)

This book provides a very complete look at all topics related to writing a proposal. The topics are arranged in such a way that each topic is addressed in the order it will be found in the actual proposal. This made it very easy to follow along in the book as I was developing my proposal. This book is the perfect accomplice for information on writing the proposal, especially the chapters on selecting a sample and collecting research data through observation and content analysis. (E. Linder)

Chapters two, three, and four are a must for beginning researchers. These chapters will answer the following questions: (1) What is a research proposal? (2) How does a research proposal differ from a research paper? (3) What are the stages of a research proposal? (4) Why do a research proposal? This book was very helpful in writing my grant proposal. (B. A. Wilder)

Grinnell, R. M. (1997). Social work research and evaluation. Itasca, Illinois: F. E. Peacock Publishers, Inc.

This book is an excellent companion to the Borg text. Part Four of this book which includes Survey Research provides insight into the dynamics used to construct and conduct survey research. The author takes the reader step-by-step through the survey process including how to conduct the interview. Since social workers typically shy aware from research, preferring to work with people instead, the author has organized the material in an easy to read format. The material does not become too boring or cumbersome. An insight to the author's approach and writing style may be reflected in his dedication page: DEDICATED TO JEAN-LUC PICARD. (R. Pellow)

Guide to Grant and Proposal Writing. (1997).
http://business.city.unisa.edu.au/s_is/msrg/Research Grants Imfo.htm

The rather long internet address listed above in the citation will direct you to a screen titled, "Research Imformation." Once you have located this screen, scroll down to the bottom of the page until you find, "Other Proposal Writing Resources." There will be several subheadings listed under this heading. You need to click on the one named,"Guide to Grant and Proposal Writing." This will take you to a screen of useful imformation on how to write and organize a grant proposal. The "Guide to Grant and Proposal Writing" is a wonderful tool for beginning researchers. This page is divided into nine sections. Under each section you will find several subheadings which give you descriptive titles. These titles allow you to locate specific imformation on the topic of your choice. By simply clicking your mouse, you can explore the bountiful supply of imformation

this website has to offer. It provides information on how to develop proposal ideas to instructions on what procedures to follow once the grant application is complete. From the beginning to the end, this is a great "friend" for any new writer to have. I would highly recommend this website to anyone who has ANY questions on how to write a proposal. (C. Richardson)

Rife, P. (1997). Grant writing: A hands-on approach. University of Hawaii: Rife & Associates.

I found examples of this software that I believe would be very useful to anyone, including students. This software shows the user how to create your own grant proposals and funding request budgets on your Mac or IBM PC. This software shows on-screen tutorials that teach the user how to write the five standard components of most grant proposals: Work Plan, Social Problems, Organizational History, Budget Request, Project Evaluation, and Project Timeline. These proposal writing templates make it easy to write proposals step by step. There are also checklists provided to help you proofread your proposal. The price for the software is what I believe a reasonable $29.95 and also includes a 50 page workbook that shows examples of successful grant proposals. The software also provides nice-looking headings and formats that allow you to customize your proposal. With computers and online resources being used more and more everyday for research and grant writing, it seems that this type of software is probably one of the most recent and most useful grant writing tools that students, professionals, or anyone could invest in. I looked at several others and this one seemed the most user-friendly while still being inexpensive and very helpful. (A. Turner)

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